G. POTSTADA.

PICKER MOTION.

APPLICATION FILED JAN. 27, 1914. RENEWED MAR. 25, 1916.

1,186,680.

Patented June 13, 1916.

2 SHEETS—SHEET 1.

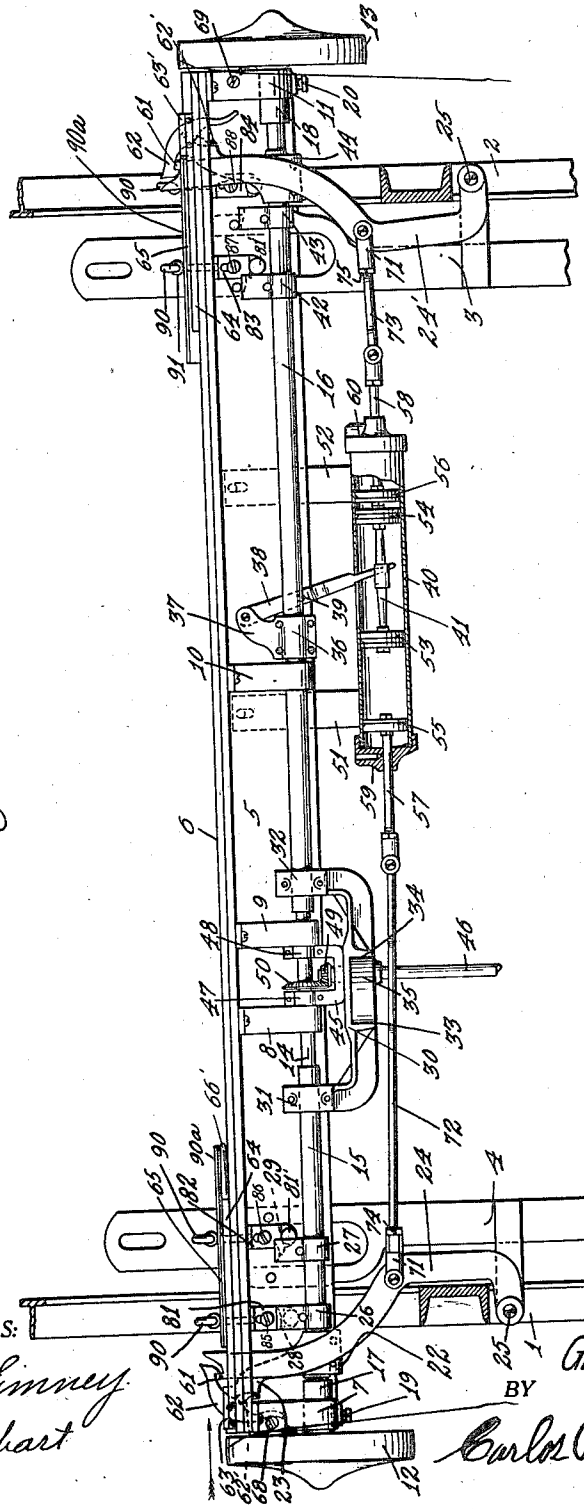


Fig. 1.

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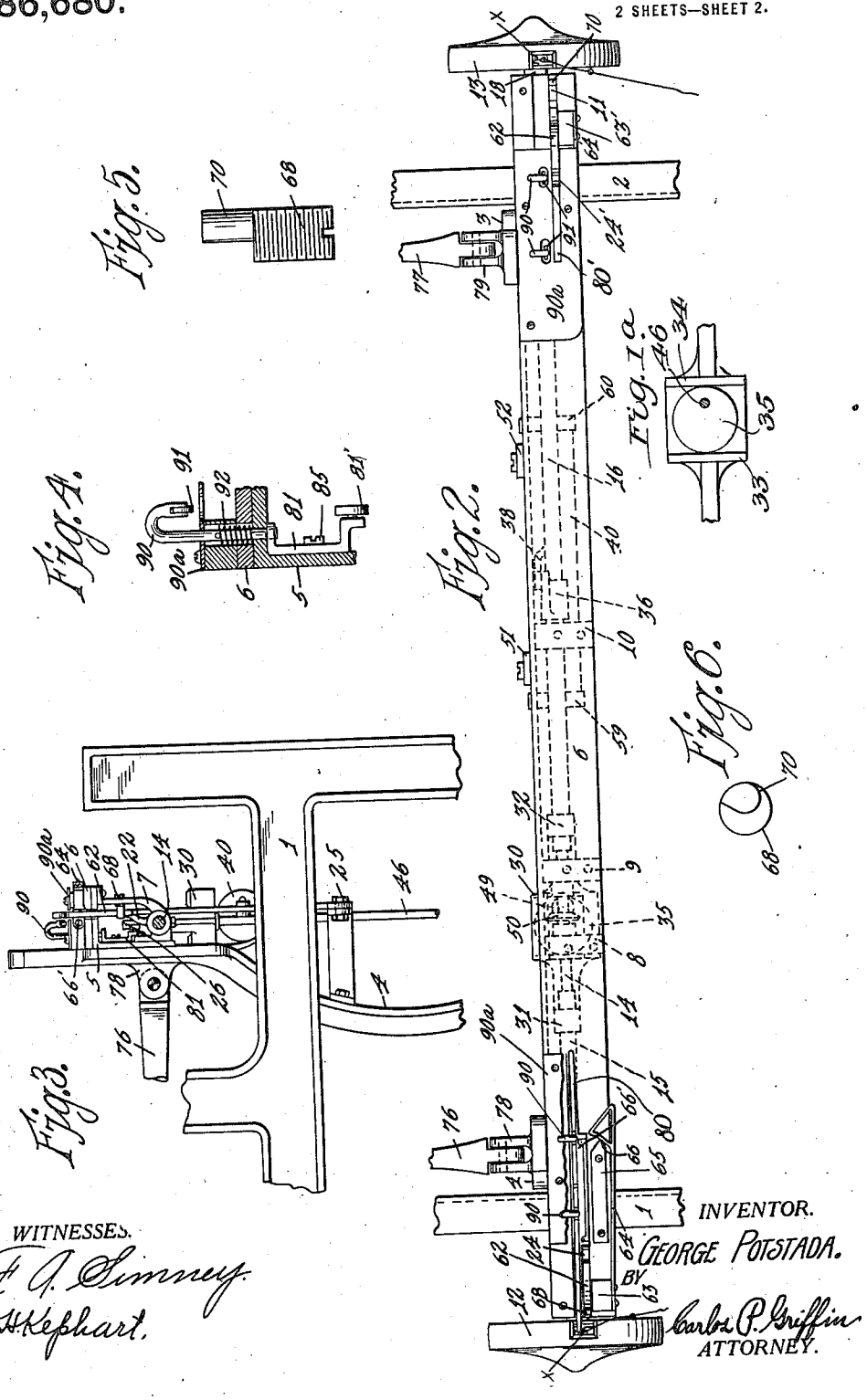


Fig. 5.

Fig. 4.

Fig. 1a

Fig. 2.

Fig. 6.

Fig. 3.

WITNESSES.

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UNITED STATES PATENT OFFICE.

GEORGE POTSTADA, OF SAN FRANCISCO, CALIFORNIA.

PICKER-MOTION.

1,186,680. Specification of Letters Patent. Patented June 13, 1916.

Application filed January 27, 1914, Serial No. 814,696. Renewed March 25, 1916. Serial No. 86,800.

To all whom it may concern:

Be it known that I, GEORGE POTSTADA, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented a new and useful Picker-Motion, of which the following is a specification in such full and clear terms as will enable those skilled in the art to construct and use the same.

An embodiment of the invention is shown in the drawing in which the same reference numeral is applied to the same portion throughout, but I am aware that there are many modifications thereof.

Figure 1 is a front elevation of the lay of a loom, a portion only of the supporting frame being illustrated, Fig. 1A is a bottom plan view of the driving cam and yoke operated thereby. Fig. 2 is a plan view of said lay, Fig. 3 is a side elevation of the lay and a portion of the frame and loom looking in the direction of the arrow Fig. 1. Fig. 4 is a view partly in section of a portion of the lay illustrating the slides which open the shuttle jaws, Fig. 5 is a side elevation of the adjusting screw used for releasing the picker lock, and Fig. 6 is an end elevation of the cam end of the picker lock adjusting screw.

This invention relates to a picker operator for looms and its object is to provide means whereby the shuttle will at all times be given a positive and equal speed.

Another object of the invention is to produce a picker operator which will require less power than the common forms of picker operators, and which will be positively operated at all points. While this picker arm is shown in connection with a particular type of loom in which a shuttle is used to carry the weft threads from large spools at each side of the loom, the operating mechanism is equally applicable to any shuttle, the impulse thereto being given by means of a vacuum cylinder.

The numerals 1 and 2 represent portions of two side frames of the loom to which the lay is pivotally connected by the usual swords 3 and 4, the lay swords supporting an angle iron 5, which in turn supports a flat member known as the lay bed 6, the reed through which the warp threads pass being omitted for purposes of illustration.

Depending from the angle iron 5 are the bearings 7, 8, 9, 10 and 11. The bearings 7 and 11 carry the weft measurers 12 and 13, while the bearings 8, 9 and 10 support the shaft 14, said shaft also extending through two tubes 15 and 16, the bearing 10 being in contact with the tube 16. The weft measurers each have a hub as indicated at 17 and 18 which hubs pass through the bearings 7 and 11, and set screws 19 and 20 secure said weft measurers in place.

The weft measurers are fully described and set forth in application Ser. No. 814,698, filed Jan. 27, 1914, and form no part of the present invention and are not included herein. They are intended to present the ends of the weft threads successively to the shuttle jaws.

The tube 15 has a clamp 22, which clamp has a portion 23 inclined forwardly and upwardly which extends through the angle iron 5 and lay bed 6 to afford the backing for the picker arm 24 to strike on. There are two picker arms 24 and 24′ which are pivoted on the lay swords at 25. The tube 15 also has two clamps 25 and 27 thereon, which clamps are on their back provided with cam surfaces 28 and 29, the object of which is to release the jaws of the weft carrier as will be later explained.

Below the bearings 8 and 9 there is a casting 30, the ends of which at 31 and 32 are clamped respectively to the tubes 15 and 16, while at 33 and 34 said casting is provided with faces against which the cam 35 operates.

The tube 16 adjacent the bearing 10 has a clamp 36 with an upwardly extending arm 37 pivoted to a lever 38, said lever being pivoted behind the tube 16 at 39 to the angle iron 5, while the lower end of said lever extends into the vacuum cylinder 40 and is connected with the piston rod 41 for a purpose to be later explained. Adjacent the picker arm 24′ the tube 16 has two cam clamps 42 and 43 substantially the same as the clamps 26 and 27, but reversely placed, while immediately adjacent the clamp 43 is a clamp 44, the same as the clamp 22, also reversely placed with respect to the clamp 22.

Between the bearings 8 and 9 there is a yoke 45 which affords a bearing for the shaft 46 and which also has two bearings 47 and 48 through which the shaft 14 extends. The shaft 46 has a bevel gear 49 in mesh with a bevel gear 50 on the shaft 14, said shaft 46 being driven from any suitable source of power, not a part of this invention.

The vacuum tube 40 is supported by means

of brackets 51 and 52 which are connected with the angle iron 5. This vacuum tube is provided with two pistons 53 and 54 on the piston rod 41 and with oppositely operated pistons 56 and 55 on the piston rods 57 and 58 extending through guide boxes 59 and 60 on the ends of the cylinder 40.

Each picker arm extends up through the slot in the angle iron 5 and through the lay bed, and is provided with a lug 61 which engages an L shaped catch 62 pivoted on blocks 63 and 63′ connected respectively with the clamps 22 and 44. Each block 63 and 63′ is provided with a spring shuttle positioner 64. The lay bed has a block 55 adjacent each shutter positioner, each of said blocks having their ends shaped to cause the inclined portion 66 of each shuttle positioner to move the shuttle positioner outwardly out of engagement with the shuttle or weft carrier when the weft carrier is about to be released to travel through the shed. The blocks 65 also afford means to prevent the weft carrier from being dislodged during the several operations which occur at the end of its travel each time it picks up the yarn.

The depending bearings 7 and 11 are each provided with a screw as illustrated at 68 and 69, each of which screws has a cam surface thereon at 70 for the purpose of striking the depending arms of the hooks 62, the position of said cam determining the precise moment of release of said hook, the left hand hook in Fig. 1 being shown as of the instant of release.

Each picker arm is provided with a yoke 71 which yokes are connected with the piston rods 57 and 58 by means of threaded rods 72 and 73, said rods being secured in a given adjustment by means of lock nuts 74 and 75. The lay is worked back and forth in a well known manner by means of links 76 and 77 connected with ears 78 and 79 bolted on the back of the angle iron 5.

The cam clamps 26, 27 and 42, 43 operate slides 81, 82, 83 and 84 respectively, said slides each having a slot and being secured in place against the inner side of the angle iron 5 by means of screws 85, 86, 87 and 88. Each of the slides 81 to 84 has an upwardly extending arm 90 connected therewith. Each arm is U shaped at its upper end and the short leg of each carries a roller 91, said rollers being for the purpose of opening the jaws at the ends of the carrier used with this loom in a manner to be later explained. Each of the arms 90 has a spring 92 to cause the arms to remain normally in the position shown in Fig. 1, a plate 90^a covering the springs and the block 65 and beneath which the carrier passes.

The operation of the apparatus is as follows: Examining Fig. 1 it will be seen that the hook 62 at the left end of the lay is just about to be released from the lug 61 on the picker arm. Thereupon the piston 55 will be drawn by the vacuum forcibly against the piston 53, the shock of the throw being taken by the picker arm at the end of the slot 80, the slot 80′ at the opposite end of the lay acting in the same manner with respect to the other picker arm. At this same time it will be observed that the cam clamps 27 and 26 have passed over the cam slides 81 and 82, thus releasing the rollers 91 from contact with the weft carrier. At this same time the picker arm is free to move to throw the carrier, and as the shaft 46 continues to rotate it will carry the tubes 15 and 16 to the right, whereupon the piston rod 41 will be pushed to the left such an amount as is necessary to cause the picker arm 24 to reengage the hook 62, the cam 35 having carried the other hook 62 and its supporting block 63′ to the right the same amount as the tube 15 moves. This action will set the picker arm at the left and the further action of the cam 35 will pull the picker arm 24′ to the right far enough for the depending end of the hook 62 to engage the cam surface of the right hand screw 68, whereupon that picker arm will be released and the weft carrier will be returned to the left hand end of the lay. Before the picker arm is released, however, the cams on the back of the clamps 42 and 43 will have engaged the cam slides 83 and 84 and will have pulled the two rollers 91 down into contact with the weft carrier, thereby opening the jaws of the same to release the yarn carried thereby and to engage a new yarn end, the operations being repeated in a continuous cycle.

The shaft 14 operates rotary yarn measuring and holding devices X within the casings 12 and 13, but these devices form the subject-matter of a separate patent application.

The shuttle or weft carrier is shown at 66′ and in order to hold the picker arm lock tightly against the lug on the top of the picker arm, a spring 62′ is used. In order to reduce the friction of the cams on the top of the clamps 26, 27 and 42 and 43, each of the slides 81 to 84 is provided with a small roller 81′, note Fig. 4.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States, is as follows, modifications within the scope of the claims being expressly reserved.

1. In a loom, the combination, with the lay, of a picker arm, means to lock said picker arm in one position, means to shift said picker arm until said locking means is released, a vacuum cylinder, a piston in the vacuum cylinder, for operating said picker arm, a second picker arm, a piston in the vacuum cylinder connected with said second arm, and an operating piston between the other two pistons for alternately setting the

two picker arms and for producing a vacuum in said cylinder.

2. In a loom, the combination, with the lay, of a picker arm, a slide on said lay, a hook carried by the slide to engage the picker arm and lock the same, means to cause said hook to be released from the picker arm, a vacuum cylinder, a piston in the vacuum cylinder, for operating the picker arm when released, a second picker arm, a piston connected therewith, and another piston for alternately setting the picker arms and for producing a vacuum in the cylinder for driving the picker arms.

3. In a loom, the combination, with the lay, of a picker arm, a slide on said lay, a hook carried thereby to engage and lock the picker arm, means to release said hook, a vacuum cylinder, connections therewith and with the picker arm for operating the same when released, a shuttle positioner for the weft carrier, and means to release said comealong from the weft carrier when the picker arm is released.

4. In a loom, the combination, with the lay, of a picker arm at each end thereof, means to lock said picker arms in one position, means to shift them alternately until the locking means is released, a vacuum chamber, and means connected with the vacuum chamber and each of said picker arms for operating them.

5. In a loom, the combination, with the lay, of a picker arm, a slide movable on the lay, a hook on said slide to engage the picker arm, means to bring the picker arm into engagement with said hook, means whereby further movement is given to said slide and picker arm, means to release said hook at the end of the movement of the picker arm, and a vacuum chamber having connections with the picker arm for operating the same.

6. In a loom, the combination, with the lay, of picker arms at each end thereof, a vacuum chamber, connections with said vacuum chamber and the picker arms whereby each picker arm will be operated, a slide carried at each end of the lay, a hook carried by each slide to engage and hold the picker arms, means to move the picker arms alternately into engagement with said hooks, means to move each of said arms alternately after being engaged with said hooks, and stops for alternately disengaging the hooks from the picker arms.

In testimony whereof I have hereunto set my hand this 20th day of January, A. D. 1914, in the presence of the two subscribed witnesses.

GEORGE POTSTADA.

Witnesses:
C. P. GRIFFIN,
HENRY B. LESTER.